

CLAIMS

1. Apparatus having a first component (16), a second component (18), both components (16, 18) being movable relative to each other, and a device for simultaneous transfer of electric power and information between said components (16, 18) through contact-free, 5 inductive coupling, wherein said device comprises a common transfer means for transfer of the power and the information and having a primary coil arrangement (1) mounted on said first component (16) and a secondary coil arrangement (2, 27) mounted on said second component (18), a power supply being connected to said primary coil arrangement (1, 24), being based on pulse width modulation and being operated at a predetermined 10 clock frequency and with a predetermined duty cycle, and modifying means (71, 72 or 10, 115 to 119) for modifying of signals generated by said power supply in dependence of said information to be transferred.
2. Apparatus according to claim 1, wherein said primary and said secondary coil arrangements (1, 24; 2, 27) each comprises a common core with two core halves (3, 8; 25, 28) separated by an air gap (15; 32).
3. Apparatus according to claim 1, wherein said primary and secondary coil arrangements (1, 24; 2, 27) each includes a main and an auxiliary winding (6, 11 and 5, 10 20 respectively).
4. Apparatus according to claim 3, wherein said main winding (6) of said primary coil arrangement (1) is connected to a DC voltage source (35) and an electronic switch (38) and wherein said power supply comprises a PWM controller (41) for switching said 25 switch (38) on and off.
5. Apparatus according to claim 4, wherein said modifying auxiliary winding (5) of said primary coil arrangement (1) is arranged to generate a signal which serves to alter said duty cycle in dependence on the value of a load (46) connected to said secondary coil 30 arrangement (2).
6. Apparatus according to claim 1, wherein said modifying means include a device (71, 72) disposed on said first component (16) for modifying said clock frequency in dependence on said information to be transferred from said first component (16) to said second

component (18).

7. Apparatus according to claim 6, wherein said means (88 to 96) are provided on said second component (18) for recovering said information from said modified frequency.

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8. Apparatus according to claim 1, wherein said modifying means include said auxiliary winding (10) of said secondary coil arrangement (2).

9. Apparatus according to claim 8, wherein said auxiliary winding (10) of said secondary coil arrangement (2) is arranged to modify a back EMF arising in said main winding (6) of said primary coil arrangement (1) in operation of said the power supply.

10. Apparatus according to claim 9, wherein said auxiliary winding (10) of said secondary coil arrangement (2) forms a series circuit with a switch (115) which can be switched in dependence on said information to be transferred from said second component (18) to said first component (16).

11. Apparatus according to claim 10, wherein said means (127 to 146) are provided on said first component (16) for recovering information from said modified back EMF.

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12. Apparatus according to claim 1, wherein said modifying means are so arranged that said information can be transferred bidirectionally and substantially simultaneously over said transfer device.

25 13. Apparatus according to claim 1, wherein said information can be transferred synchronously.

14. Apparatus according to claim 1, wherein said first component (16) is stationary and said second component is movable.

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15. A circular knitting machine, being provided with an apparatus according to  
claim 1